

ABSTRACT OF THE DISCLOSURE

Mediated cooperation of entities occurs based on uniformed (canonical) representation of objects as tuples allocated for different semantic aspects of the objects. The tuples are connected to represent sequential events of one or more processes, which allow the entities to produce the objects. The conditions under which the entity can produce one or more of the objects are represented by using tuple templates. In order to implement the process, each object is associated with one or more semantic terms and one tuple named with the semantic term is allocated for every association. Allocated tuples contain the information from the object, which corresponds to the meaning of the semantic term. The goal of each process is identified by one or more of the semantic terms. The processes are then implemented by generating chains of events, which terminate at the tuples corresponding to each semantic term. The semantic terms are aggregated into general categories, which are used by the cooperating entities for the goal identification. One or more of semantic mediators are used to ensure sound formal semantics of the categories by maintaining type systems for different problem domains. The type system of each domain is based on the connected tuples forming a hyper-graph, which is used to determine formal semantics of each type.